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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/558,588	04/26/00	SHIBATA	K 3008-03

LALOS & KEEGAN
1146 NINETEENTH STREET N W
FIFTH FLOOR
WASHINGTON DC 20006-3404

MM21/0814

EXAMINER

WILLE, D

ART UNIT

PAPER NUMBER

2814

DATE MAILED:

08/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/558,588	Applicant(s) SHIBATA ET AL.	
	Examiner Douglas A Wille	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. in view of Sasaki et al.
3. With respect to claims 1 – 3, 5 – 10, 12 – 16, 19 and 20, Hatano et al. show a laser (Figure 3 and column 5, line 59 et seq.) with an active layer 45 of $\text{In}_{0.5}\text{Ga}_{0.5}\text{P}$, a p-clad layer 46 of $\text{In}_{0.5}\text{Ga}_{0.2}\text{Al}_{0.3}\text{P}$, and a p-intermediate layer 47 which is indicated as $\text{In}_{0.5}\text{Ga}_{0.5}\text{Al}_{0.1}\text{P}$. Note that the formula of layer 47 is not correct and since the layer is indicated as being low in Al (column 10, line 13) it is therefore interpretable as $\text{In}_{0.5}\text{Ga}_{0.4}\text{Al}_{0.1}\text{P}$. Thus layer 47 has a bandgap greater than the active layer and less than the clad layer 46. The layers are also lattice matched. Since Hatano et al. show a laser, there is no window layer but Sasaki et al. show a LED with similar materials (see Figure 3 and column 8, line 14 et seq.) that uses a window layer of GaP. It would have been obvious to modify Hatano et al. with the window layer of Sasaki et al. to provide a LED version of the laser.
4. With respect to claims 4, 11, 18 and 22, Hatano et al. show the doping level of layer 47 is 1×10^{18} (column 6, line 10).

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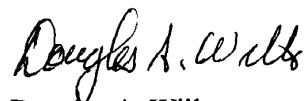
5. With respect to claims 17 and 21, Hatano et al. show the dopant is Mg while in Sasaki et al. the p-dopant is Zn. It would have been obvious to substitute Zn for Mg as a design alternative.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-3:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Douglas A. Wille
Patent Examiner

daw
August 8, 2001